Alcohol and Illicit Drugs among Spanish Drivers

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Abstract
The aim of this article was to assess the presence of alcohol and illicit drugs among Spanish drivers involved in fatal road accidents between 1991 and 1998. In addition, in this study the results from alcohol breath tests carried out on Spanish motor vehicle operators between 1989-1998 are also analysed. The data show that in 53.6% of those killed in traffic accidents, some type of psychoactive substance was detected: 47.3% alcohol, 8.9% illicit drugs, 4.8% medicinal drugs. In a little over one out of every three cases (35.1%), a blood alcohol level over the legal limit allowed in Spain during the period studied (0.8 gr/l) was detected. The results show that the presence of psychoactive substances in motor vehicle operators is frequent; a clear trend could not be established for the period analysed, although a trend is observed towards a decrease in the frequency with which some type of psychoactive substance was detected (58.7% in 1991, 50.8% in 1998), with the same for alcohol (51.3% in 1991, 43.2% in 1998). As far as alcohol breath tests given to motor vehicle operators are concerned, these have been positive in 3.5% of cases in 1998. The percentage of positive tests has been increasing as years go by, especially in those tests given to drivers involved in accidents and in traffic offences (1989-1997).

Keywords
Alcohol; Driver; Illicit drugs; Medicinal drugs; Road traffic accidents;

Introduction

Current legislation in our country states that one may not drive under the influence of psychoactive substances (illicit drugs and medicinal drugs) that may alter the physical or mental state in which one is fit to drive without danger (Royal Decree 13/1992). Likewise, the maximum allowable blood alcohol levels in motor vehicle operators have been established for several decades (1).

On May 7, 1999, Royal Decree 2282/1998 became effective, establishing blood alcohol concentrations and the administration of tests to motor vehicle operators, and modifying the legislation which had been in effect until now under the General Driving Regulations (Royal Decree 13/1992). According to the new legislation, motor vehicle operators may not drive if their blood alcohol concentration is greater than 0.5 gr/l (or 0.25 mg/l in exhaled air). These limits are 0.3 gr/l (0.15 mg/l in exhaled air) for operators of vehicles intended for transporting

goods, passengers/schoolchildren, hazardous goods, special transportation, etc., as well as for any operator in the first two years after obtaining a driver's licence or permit (1).

The evidence available in our country indicates that the consumption of alcohol and other psychoactive substances is frequent among motor vehicle operators, and that driving under the influence of these substances is equally customary (2,3). Only in the last few years has information begun to be available about the involvement of psychoactive substances in the incidence of traffic accidents (4).

In this study, information from two sources is analysed: i) from the National Toxicological Centre regarding the presence of substances in motor vehicle operators involved in fatal accidents, and ii) from the National Traffic Agency, regarding alcohol breath tests administered to motor vehicle operators. This is to try to determine the role that alcohol, illicit drugs and medicinal drugs play in the incidence of traffic accidents, as well as to analyse their evolution in the last several years (1991-1998).

Methods

Samples concerning 3191 road accident victims from January 1, 1991, to December 31, 1998, were obtained. All samples were from drivers. Sample distribution according to year was as follows: 1991 = 259, 1992 =250; 1993 = 199; 1994 =244; 1995 = 279; 1996 = 383; 1997 = 487; 1998 = 1090. From 1991 to 1998, 91.8% of the samples were from males and 8.2% from females. As far as the range of ages is concerned, 10.7% (n = 340) were under 20 years of age; 31.5% (n= 1004) were aged 21-30; 18.7% (n= 597) were 31-40; 11.6% (n= 370) were 41-50; 8.9% (284) were 51-60; 9.3% (n= 298) were over 60 years of age; and in the rest of the cases (9.3%, n= 298) the age was unknown.

The cases correspond to samples referred to the National Toxicological Centre (Instituto Nacional de Toxicología) by forensic doctors or as instructed by the judge.

Blood samples were analysed for alcohol (ethanol) by Head-Space Gas chromatography. All samples were also screened for the presence of drugs other than alcohol (medicinal drugs and illicit drugs) by immunological or chromatographic methods when appropriate. Positive results after screening were confirmed by means of gas chromatography /mass spectrometry (GC-MS) and concentrations of the psychoactive drugs or metabolites were determined (4,5).

Substances other than alcohol were classified in two groups as earlier mentioned: medicinal drugs and illicit drugs. Among the illicit drugs, the following categories were considered: opiates, cocaine, cannabis, amphetamines, synthetic drugs (ecstasy) and hallucinogenic drugs. For this study, benzodiazepines were always considered as medicinal drugs. Methadone was classified as a medicinal drug. The different medicinal drugs were classified in accordance with the Anatomical Therapeutic Chemical classification system.

The analytical results were expressed as follows: i) no substance detected, or ii) some type of substance detected. Once a substance had been detected, the following possibilities were considered:

i) alcohol alone,
ii) alcohol + medicinal drugs
iii) alcohol + illicit drugs
iv) alcohol + medicinal drugs + illicit drugs
v) illicit drugs alone

vi) illicit drugs + medicinal drugs
vii) medicinal drugs alone

Furthermore, the percentage of cases in which alcohol, medicinal drugs and illicit drugs were found was also calculated. Regarding alcohol, cases in which blood alcohol concentration was equal to or over 0.8 gr/l were shown, as this was the maximum level allowed for motor vehicle operators in Spain from 1991-1998.

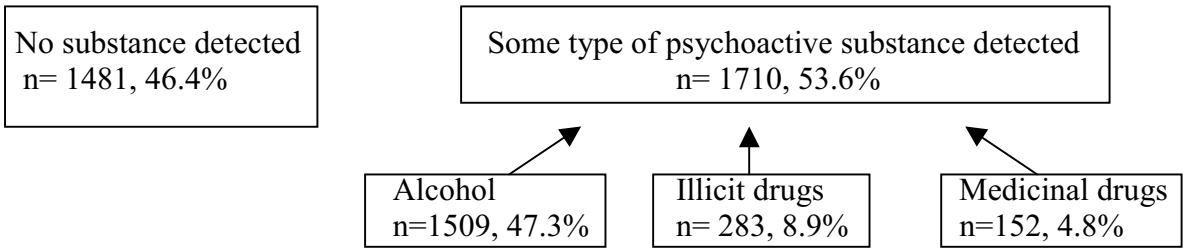
As far as alcohol breath tests performed on motor vehicle operators are concerned, the data provided by the National Traffic Agency (Dirección General de Tráfico)(6) were analysed, and the total percentage of positive cases established, in relation with the three possible motives for performing these tests: i) random breath tests, ii) in cases of involvement in traffic accidents, iii) in cases where some traffic offence was committed.

Analysis of the data was conducted in the Data Processing Centre at Valladolid University. Statistical analysis was by means of SAS software version 6.07. P-values < 0.05 were considered to be significant differences.

Results

As can be observed in Figure 1, some type of psychoactive substance was detected in 53.6% of the samples: in 47.3% of the cases the substance detected was alcohol, while in 8.9% it was illicit drugs, and medicinal drugs in 4.8%.

Figure 1: Presence of substances among Spanish drivers involved in fatal road accidents, 1991-1998.



Among those cases where alcohol was detected (47.3%), in 41.5% of the cases only alcohol was detected, in 4.1% alcohol along with illicit drugs, in 1.3% alcohol along with medicinal drugs, and in 0.4% alcohol along with illicit drugs and medicinal drugs. In 35.1% of all the samples analysed, the level of alcohol detected was above the legal limit allowed in Spain during the period studied (0.8 gr/l) (Tables 1 and 2).

When analysing the distribution between 1991 and 1998, it can be observed that alcohol was detected most frequently in 1995 (54.1%), while the highest number of cases of alcohol over the legal limit was detected in 1991 (42.2%) Table 1. The lowest frequency occurred, in both cases, in 1998: presence of alcohol 43.2%, alcohol > 0.8 gr/l, 30.4% (Table 2).

Table 1: Presence of psychoactive drugs among Spanish drivers involved in fatal road accidents, 1991-1998.

year	No susbtances	Any sychotro-pic drug	Alcohol	Illicit drugs	Medicinal drugs
	N %	N %	N %	N %	N %
1991	107 41.3	159 58.7	133 51.3	20 7.7	17 6.6
1992	104 41.6	146 58.2	130 52.0	19 7.6	8 3.2
1993	82 41.2	117 58.8	101 50.7	21 10.5	15 7.5
1994	118 48.4	126 51.6	113 46.3	17 7.0	10 4.1
1995	120 43.0	159 57.0	151 54.1	26 9.3	10 3.6
1996	174 45.4	209 54.6	186 48.6	35 9.1	28 7.3
1997	240 49.3	247 50.7	224 46.0	42 8.6	15 3.1
1998	536 49.2	554 50.8	471 43.2	103 9.4	49 4.5

Table 2: Presence of alcohol among Spanish drivers involved in fatal road accidents, 1991-1998.

Year	Alcohol	Alcohol Alone	Alcohol + Illicit drugs	Alcohol + Medicines	A + llicit + Medicines	Alcohol > 0.8 gr/l
	N %	N %	N %	N %	N %	N %
1991	133 51.3	117 45.2	12 4.6	4 1.5	0 0.0	112 43.2
1992	130 52.0	121 48.4	7 2.8	2 0.8	0 0.0	96 38.4
1993	101 50.7	90 45.2	5 2.5	2 1.0	4 2.0	73 36.7
1994	113 46.3	101 41.4	10 4.1	2 0.8	0 0.0	87 35.6
1995	151 54.1	129 46.2	18 6.4	3 1.1	1 0.3	115 41.2
1996	186 48.6	152 39.7	21 5.5	11 2.9	2 0.5	131 34.2
1997	224 46.0	199 40.9	19 3.9	3 0.6	3 0.6	174 35.7
1998	471 43.2	416 38.2	38 3.5	14 1.3	3 0.3	331 30.4

Table 3: Presence of substances other than alcohol among Spanish drivers involved in fatal road accidents, 1991-1998.

Year	Illicit drugs	Medicinal drugs	Illicit drugs Alone	Illicit + medicines	Medicines Alone
	N %	N %	N %	N %	N %
1991	20 7.7	17 6.6	6 2.3	2 0.8	11 4.2
1992	19 7.6	8 3.2	10 4.0	2 0.8	4 1.6
1993	21 10.5	15 7.5	7 3.5	5 2.5	4 2.0
1994	17 7.0	10 4.1	5 2.0	2 0.8	6 2.4
1995	26 9.3	10 3.6	2 0.7	5 1.8	1 0.3
1996	35 9.1	28 7.3	8 2.1	4 1.0	11 2.9
1997	42 8.6	15 3.1	14 2.9	6 1.2	3 0.6
1998	103 9.4	49 4.5	51 4.7	11 1.0	21 1.9

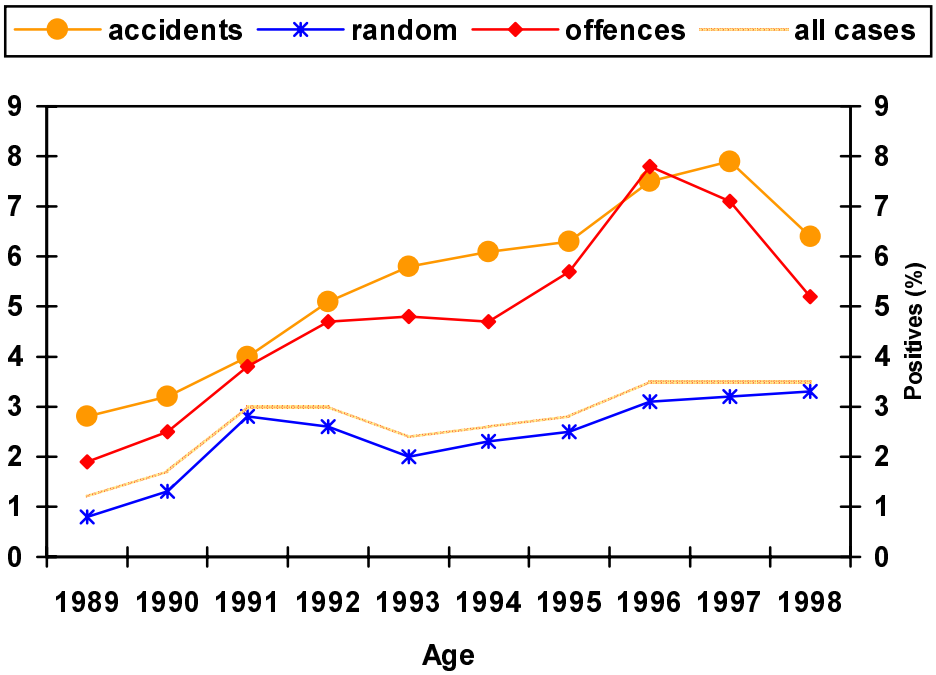
The percentage of cases with an alcohol level above the legal limit in relation to the total number of cases in which alcohol was detected was 74.1%. In 1991, in 84.2% of all the cases in which alcohol was detected, the blood alcohol concentration was over the legal limit allowed. 1996 was, however, when the percentage of cases was the smallest (62.7%).

Tables 2 and 3 shows the distribution of the cases in which illicit drugs were detected (8.9%). In 4.1% of the cases illicit drugs were found together with alcohol, in 3.2% only illicit drugs, in 1.2% illicit drugs along with medicinal drugs, and in 0.4% illicit drugs along with alcohol and medicinal drugs.

Table 2 and 3 shows the distribution of cases in which medicinal drugs were detected (4.8%). In 1.9% of the cases, only medicinal drugs were detected, in 1.3% medicinal drugs along with alcohol were found, in 1.2% medicinal drugs along with illicit drugs, and in 0.4% medicinal drugs along with illicit drugs and alcohol.

Figure 2 shows the percentage of cases in which these alcohol breath tests administered were positive. Throughout the years, a trend can be observed towards an increase in the percentage of positive cases in situations where motor vehicle operators were involved in accidents and in operators who have committed traffic violations, except for 1998. Each year over a million alcohol breath tests were administered.

Figure 2: Breathalyser test carried out in Spain: positive cases (%)



Discussion

The data presented clearly show that the presence of alcohol is frequent in drivers involved in fatal traffic accidents. The presence of illicit and medicinal drugs is less frequent, but nevertheless not to be dismissed as unimportant (4,5).

The analysis of the data available from 1991 to 1998 does not allow a clear evolution to be established during the period analysed, although a trend can be observed towards a decrease in the frequency with which some type of psychoactive substance is detected (58.7% in 1991, 50.8% in 1998), and the same for alcohol (51.3% in 1991, 43.2% in1998).

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